What is claimed is:

1. A method of fabricating a semiconductor device, comprising the steps of:

forming an insulating layer on a silicon substrate;

forming a contact hole in the insulating layer so that a portion of the silicon substrate is exposed in the contact hole;

performing an interface treatment to the exposed portion of the silicon substrate, wherein the interface treatment includes at least a dry cleaning and a hydrogen heat treatment; and

forming a selective silicon plug on the exposed portion of the silicon substrate.

2. The method of claim 1, wherein the interface treatment further includes a wet cleaning, removal of a natural oxide layer, and a laser cleaning.

3. The method of claim 2, wherein the wet cleaning, the natural oxide layer removal, and the laser cleaning are performed individually or collectively, regardless of order.

4. The method of claim 1, wherein the dry cleaning uses one or more gas, in a mixed gas, selected from the group of gases comprising NF_3, O_2, He and N_2, and the dry cleaning step is performed with a plasma power of between 1 and 5kW for a period of up to five minutes.

5. The method of claim 2, wherein the wet cleaning uses, individually or collectively, H_2O_2, H_2SO_4, NF_4, HF, and BOE diluted solutions.

6. The method of claim 2, wherein the natural oxide layer removal is performed at a temperature of between 100 and 500°C for ten minutes or less by means of plasma generated from mixed gases of NF_3 and N_2 and then supplied to the silicon substrate.

7. The method of claim 1, wherein the hydrogen heat treatment is performed with a low pressure of between 1 mTorr and 100 Torr at a high temperature of between 700 and 1000°C for thirty minutes or less by using hydrogen gas with a flow rate of between 1 and 100 slm, thereby allowing an in-situ process in a single facility or an ex-situ process in different facilities.

8. The method of claim 2, wherein the laser cleaning is performed with a laser power of between 1 mJ/cm^2 and 10 J/cm^2 while the laser is applied at least once and up to one hundred times.

9. The method of claim 1, wherein the step of forming the selective silicon plug is carried out by means of an atmospheric pressure chemical vapor deposition (APCVD) or a low-pressure chemical vapor deposition (LPCVD), employing a gas system of $DCS/H_2/PH_3$, $MS/H_2/PH_3$, or MS/PH_3 at a pressure of between 1 and 200 Torr and a temperature of between 500 and 700°C.

10. The method of claim 9, wherein the MS and DCS gases each have a flow rate of between 100 and 500 sccm.

11. The method of claim 9, wherein the H_2 gas has a flow rate of between 5000 and 20000 sccm.

12. The method of claim 9, wherein the PH_3 gas has a flow rate of between 100 and 1000 sccm, and therein the density of phosphorus is 1×10^{19} to 1×10^{21} atoms/cc.

13. A method of fabricating a semiconductor device, comprising the steps of:

forming a gate on a silicon substrate;

forming an impurity junction region in the silicon substrate under each side of the gate;

forming an insulating layer on the entire resultant structure and then forming a contact hole exposing a surface of the impurity junction region by selectively removing the insulating layer;

performing an interface treatment to the exposed surface of the impurity junction region, wherein the interface treatment includes at least a dry cleaning and a hydrogen heat treatment; and

forming a selective silicon plug on the exposed surface of the impurity junction region by growing a single crystalline silicon on the exposed surface and subsequently growing polycrystalline silicon on the single crystalline silicon.

14. The method of claim 13, wherein the interface treatment further includes the steps of: a wet cleaning, a natural oxide layer removal, and a laser cleaning, which are performed individually or collectively, regardless of order.

15. The method of claim 13, wherein the dry cleaning uses mixed gases of NF_3, O_2, He and N_2, and are performed with a plasma power of between 1 and 5kW for a period of up to five minutes.

16. The method of claim 14, wherein the wet cleaning uses, individually or collectively, H_2O_2, H_2SO_4, NF_4, HF, and BOE diluted solutions.

17. The method of claim 14, wherein the natural oxide layer removal is performed at a temperature of between 100 and 500°C for ten minutes or less by means of plasma generated from mixed gases of NF_3 and N_2 and then supplied to the silicon substrate.

18. The method of claim 13, wherein the hydrogen heat treatment is performed at a low pressure of between 1 mTorr and 100 Torr at a high temperature of between 700 and 1000°C for thirty minutes or less by using a hydrogen gas with a flow rate of between 1 and 100 slm, allowing an in-situ process in a single facility or an ex-situ process in different facilities.

19. The method of claim 14, wherein the laser cleaning is performed with a laser power of between 1 mJ/cm^2 and 10 J/cm^2 while the laser is applied at least once and up to one hundred times.

20. The method of claim 13, wherein the step of forming the selective silicon plug is carried out by means of an atmospheric pressure chemical vapor deposition (APCVD) or a low-pressure chemical vapor deposition (LPCVD), employing a gas system of $DCS/H_2/PH_3$, $MS/H_2/PH_3$, or MS/PH_3 with a pressure of between 1 and 200 Torr and at a temperature of between 500 and 700°C.

21. The method of claim 20, wherein the MS and DCS gases each have a flow rate of between 100 and 500 sccm, the H_2 gas has a flow rate of between 5000 and 20000 sccm, the PH_3 gas has a flow rate of between 100 and 1000 sccm, and the density of phosphorus in the PH_3 gas is 1×10^{19} to 1×10^{21} atoms/cc.